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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,808	12/02/2003	Stephan Shane Supplee	I-2-0425.1US	3325
24374	7590	08/24/2004	EXAMINER	
VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			CHANG, RICHARD	
			ART UNIT	PAPER NUMBER
			2663	
DATE MAILED: 08/24/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/725,808	Applicant(s) SUPPLEE ET AL.	
	Examiner Richard Chang	Art Unit 2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-9,14-16,21,22,24,25,30 and 31 is/are rejected.
- 7) ☒ Claim(s) 1-32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1, 3, 5-8, 10, 12-15, 17, 19-22, 24, 26 and 28-31 are objected to because of the following informalities:

Regarding claims 1, 3, 5-8, 10, 12-15, 17, 19-22, 24, 26 and 28-31, the number N does not have a clearly defined range. Appropriate correction is required.

2. For further examination examiner currently the number N is an integer within the reasonable range for the subject matter.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2, 7-9, 14-16, 21-22, 24-25 and 30-31 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by US patent No. 6,704,376 ("Mills et al").

Regarding claims 1, 8, 15, and 24, Mills et al teach

A real-time multi-user detection (MUD) receiver and method (a CDMA system or WTRU that receives ... by codes) comprising steps of

the voting process is a matrix (K users x J time or symbol intervals) of soft decision values (constructing a system ... with their codes),

based on the matrix (K users x J time or symbol intervals) of soft decision values generating soft symbol from a particular user at a particular time interval (based on the constructed ... of the possible codes),

based on the soft symbols, outputting the estimates of the data bits that correspond to the original uncoded data bits going into the system at each transmitter (based on the N soft symbol ... received codes), and

outputting the matrix (K.times.J) of soft values that corresponds to conditional probabilities of the channel symbols to extract the corrected bit or symbol decisions (soft data) (extracting data from ... received codes).

Regarding claims 2, 9, 16 and 25, Mills et al further teach that

the output of the MUD decision tree is a set of surviving best sequence estimates with discrete values over users and time and the voting step 460 is performed on each symbol in the data block for each user (step of extracting data is performed using a multi-user detector).

Regarding claims 7, 14, 21-22 and 30-31, Mills et al further teach that

a whitening matched filter bank is used in the preferred embodiment, thus the signal is `warped` or spread-out into the space which reduces the effects of other users in close proximity and lowers the effects of `bleeding` on the decision tree (the N soft symbol estimates are based on whitening matched filter (WMF) outputs);

(See Fig. 3 and 5 , Col. 17, line 44 to Col. 19, line 43).

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***Allowable Subject Matter***

5. Claims 3-6, 10-13, 17-20, 23, 26-29 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if no art rejection can be applied.

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chang whose telephone number is 703-605-4398. The examiner can normally be reached on Monday - Friday from 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T Nguyen can be reached on 703-308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RKC  
rkc

Richard Chang  
Patent Examiner  
Art Unit 2663



KENNETH VANDERPUYE  
PRIMARY EXAMINER